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(54) INFORMATION OUTPUT CONTROLLER, INFORMATION OUTPUT
CONTROL METHOD, AND STORAGE MEDIUM

(57)Abstract:

PROBLEM TO BE SOLVED: To make it possible to more quickly and easily transit to a menu layout and a sound output mode in matching with the preference of a user, when an input source is subject to change.

SOLUTION: View history information (history database) by each of past view user forms, with respect to the attribute of an input source and an output control method for the input source is stored in advance such that which input source (a combination of video and information) among input sources is viewed, by which image sound configuration and to which multi-window display is transited, depending on a relation with a video image viewed at that time when an interruption type input source is received (Figure 3). Then the view user is identified (S400), and in the case of displaying and reproducing input sources

provided from media at the same time, the menu layout and the sound output are controlled on the basis of the view history information (S403).

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CLAIMS

[Claim(s)]

[Claim 1] In an information power control device with possible making an image display device carry out the image output of two or more input at least at coincidence The user group which consists of at least one person, and the attribute of at least one input, A storing means to match mutually the display parameter which shows the screen configuration when displaying one input on said image display device, and to store as one record even if this ** cannot be found, An user-group recognition means to recognize the user group which consists of at least one person who will look at the screen displayed on said image display device, An attribute detection means to detect the attribute of at least one input specified by said user group, A retrieval means to look for a record from said storing means based on the user group recognized by said user-group recognition means, and the attribute of the input detected by said attribute detection means, An output means to read the display parameter

contained in the record for which it looked with said retrieval means, and to display said at least one input on said image display device based on this display parameter, A display parameter appearance means to detect the display parameter in the screen displayed on said image display device by said output means, The attribute of the user group recognized by said user-group recognition means, and the input detected by said attribute detection means, And the information power control device characterized by having the storing control means which the display parameter detected with said display parameter appearance means is matched [control means] mutually, and makes it store in said storing means as one record.

[Claim 2] The information power control device according to claim 1 characterized by containing the display parameter concerning the attribute of two or more of said input, and said two or more input detected with said display parameter appearance means in the correspondence record stored in said storing means when the input specified by said user group is plurality.

[Claim 3] The attribute of the input detected by said attribute detection means is an information power control device according to claim 1 or 2 characterized by including the classification of the transfer medium of this input.

[Claim 4] The classification of said transfer medium is television broadcasting, a communication line, and an information power control device according to claim

3 characterized by being at least one of the direct continuation of an external instrument.

[Claim 5] The attribute of the input detected by said attribute detection means is an information power control device according to claim 1 or 2 characterized by including the genre of a program when the transfer medium of this input is television broadcasting.

[Claim 6] The attribute of the input detected by said attribute detection means is an information power control device according to claim 1 or 2 characterized by including the classification of regeneration of this input.

[Claim 7] The classification of said regeneration is an information power control device according to claim 6 characterized by being at least one of a television reception, Internet browsing, a clock display, electronic mail reception, the notice of a scheduler, and external instrument provided information playbacks.

[Claim 8] The display parameter detected by said display parameter appearance means is the magnitude of the window on the screen where the input of correspondence is displayed, a location, and an information power control device according to claim 1 or 2 characterized by being at least one of heavy display ranking.

[Claim 9] When image display is performed to said image display device by said output means, the case where the demand which asks for displaying new input

further occurs -- this -- with an attribute addition detection means to detect the attribute of new input The attribute of the user group recognized by said user-group recognition means, and the input detected by said attribute detection means, And an additional retrieval means to look for a record from said storing means based on the attribute of the new input detected by said attribute addition detection means, An additional output means to read the display parameter contained in the record for which it looked with said additional retrieval means, and to display said at least one input and said new input on said image display device based on this display parameter, A display parameter addition detection means to detect the display parameter in the screen displayed on said image display device by said additional output means, The attribute of the input detected, respectively by the user group recognized by said user-group recognition means, said attribute detection means, and said attribute addition detection means, And the information power control device according to claim 1 to 8 characterized by having further the additional storing control means which the display parameter detected with said display parameter addition detection means is matched [control means] mutually, and makes it store in said storing means as one record.

[Claim 10] It is the information power control device according to claim 9 which said attribute addition detection means detects the start time of said program

including the start time of a program when the transfer medium of this input of the attribute of said input is television broadcasting, and is characterized by said additional output means displaying said at least one input and said new input on said image display device based on said display parameter and said detected start time.

[Claim 11] Said information power control device can carry out voice playback of the input to at least one voice regenerative apparatus. Said storing means stores the voice output parameter at the time of making said at least one voice regenerative apparatus reproduce said at least one input in a correspondence record. Said output means While reading the display parameter and voice output parameter which are contained in the record for which it looked with said retrieval means and displaying said at least one input on said image display device based on this display parameter The information power control device according to claim 1 to 10 characterized by making said voice regenerative apparatus reproduce said at least one input based on this voice output parameter.

[Claim 12] Said voice output parameter is an information power control device according to claim 11 characterized by being the output channel of input at least.

[Claim 13] Said output channel is a loudspeaker, headphone, and an information power control device according to claim 12 characterized by being at least one

of non-voice.

[Claim 14] Said voice output parameter is an information power control device according to claim 11 characterized by being in voice output mode of input at least.

[Claim 15] Said voice output mode is an information power control device according to claim 14 characterized by being at least one of a stereo, a multi-channel stereo, and the two-language modes.

[Claim 16] In the information output-control approach applied to an information power control device with possible making an image display device carry out the image output of two or more input at least at coincidence The user group which consists of at least one person, and the attribute of at least one input, The 1st storing step which matches mutually the display parameter which shows the screen configuration when displaying one input on said image display device even if there was none of these **, and is stored in storage as one record, The user-group recognition step which recognizes the user group which consists of at least one person who will look at the screen displayed on said image display device, The attribute detection step which detects the attribute of at least one input specified by said user group, The retrieval step which looks for a record from said storage based on the user group recognized by said user-group recognition step, and the attribute of the input detected by said attribute

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detection step, The output step which the display parameter contained in the record for which it looked by said retrieval step is read [step], and displays said at least one input on said image display device based on this display parameter, The display parameter appearance step which detects the display parameter in the screen displayed on said image display device by said output step, The user group recognized by said user-group recognition step, The information output-control approach characterized by having the 2nd storing step which matches mutually the attribute of the input detected by said attribute detection step, and the display parameter detected at said display parameter appearance step, and stores it in said storage as one record.

[Claim 17] The information output-control approach according to claim 16 characterized by containing the display parameter concerning the attribute of two or more of said input, and said two or more input detected at said display parameter appearance step in the correspondence record stored in said storage when the input specified by said user group is plurality.

[Claim 18] When image display is performed to said image display device by said output step, the case where the demand which asks for displaying new input further occurs -- this -- with the attribute addition detection step which detects the attribute of new input The user group recognized by said user-group recognition step, The additional retrieval step which looks for a record from said

storage based on the attribute of the input detected by said attribute detection step, and the attribute of the new input detected by said attribute addition detection means, The display parameter contained in the record for which it looked by said additional retrieval step is read. The additional output step which displays said at least one input and said new input on said image display device based on this display parameter, The display parameter addition detection step which detects the display parameter in the screen displayed on said image display device by said additional output step, The user group recognized by said user-group recognition step, The attribute of the input detected, respectively by said attribute detection step and said attribute addition detection step, And the information output-control approach according to claim 16 or 17 characterized by having further the 3rd storing step which matches mutually the display parameter detected at said display parameter addition detection step, and stores it in said storage as one record.

[Claim 19] It is the information output-control approach according to claim 18 which said attribute addition detection step detects the start time of said program including the start time of a program when the transfer medium of this input of the attribute of said input is television broadcasting, and is characterized by said additional output step means displaying said at least one input and said new input on said image display device based on said display parameter and said

detected start time.

[Claim 20] Said information power control device can carry out voice playback of the input to at least one voice regenerative apparatus. Said 1st storing step The voice output parameter at the time of making said at least one voice regenerative apparatus reproduce input is stored in the correspondence record of said storage. Said output step While reading the display parameter and voice output parameter which are contained in the record for which it looked by said retrieval step and displaying said at least one input on said image display device based on this display parameter Said voice regenerative apparatus is made to reproduce said at least one input based on this voice output parameter. Said information output-control approach The voice output parameter appearance step which detects the voice output parameter in the voice reproduced by said voice regenerative apparatus by said output step, The information output-control approach according to claim 16 to 19 characterized by having further the 4th storing step which stores in the correspondence record of said storage the voice output parameter detected at said voice output parameter appearance step.

[Claim 21] In the storage which memorized as a program the information output-control approach applied to an information power control device with possible making coincidence carry out the image output of two or more input at least at an image display device and in which read-out [computer] is possible

The user group which said information output-control approach becomes from at least one person, The 1st storing step which matches mutually the attribute of at least one input, and the display parameter which shows the screen configuration when displaying one input on said image display device even if there was none of these **, and is stored in storage as one record, The user-group recognition step which recognizes the user group which consists of at least one person who will look at the screen displayed on said image display device, The attribute detection step which detects the attribute of at least one input specified by said user group, The retrieval step which looks for a record from said storage based on the user group recognized by said user-group recognition step, and the attribute of the input detected by said attribute detection step, The output step which the display parameter contained in the ** record for which it looked by said retrieval step is read [step], and displays said at least one input on said image display device based on this display parameter, The display parameter appearance step which detects the display parameter in the screen displayed on said image display device by said output step, The user group recognized by said user-group recognition step, The storage characterized by having the 2nd storing step which matches mutually the attribute of the input detected by said attribute detection step, and the display parameter detected at said display parameter appearance step, and stores it in said storage as one record.

[Claim 22] The storage according to claim 21 characterized by containing the display parameter concerning the attribute of two or more of said input, and said two or more input detected at said display parameter appearance step in the correspondence record stored in said storage when the input specified by said user group is plurality.

[Claim 23] When image display is performed for said information output-control approach to said image display device by said output step, the case where the demand which asks for displaying new input further occurs -- this -- with the attribute addition detection step which detects the attribute of new input The user group recognized by said user-group recognition step, The additional retrieval step which looks for a record from said storage based on the attribute of the input detected by said attribute detection step, and the attribute of the new input detected by said attribute addition detection means, The display parameter contained in the record for which it looked by said additional retrieval step is read. The additional output step which displays said at least one input and said new input on said image display device based on this display parameter, The display parameter addition detection step which detects the display parameter in the screen displayed on said image display device by said additional output step, The user group recognized by said user-group recognition step, The attribute of the input detected, respectively by said attribute detection step and said attribute

addition detection step, And the storage according to claim 21 or 22 characterized by having further the 3rd storing step which matches mutually the display parameter detected at said display parameter addition detection step, and stores it in said storage as one record.

[Claim 24] It is the storage according to claim 23 which said attribute addition detection step detects the start time of said program including the start time of a program when the transfer medium of this input of the attribute of said input is television broadcasting, and is characterized by said additional output step means displaying said at least one input and said new input on said image display device based on said display parameter and said detected start time.

[Claim 25] Said information power control device can carry out voice playback of the input to at least one voice regenerative apparatus. Said 1st storing step The voice output parameter at the time of making said at least one voice regenerative apparatus reproduce input is stored in the correspondence record of said storage. Said output step While reading the display parameter and voice output parameter which are contained in the record for which it looked by said retrieval step and displaying said at least one input on said image display device based on this display parameter Said voice regenerative apparatus is made to reproduce said at least one input based on this voice output parameter. Said information output-control approach The voice output parameter appearance

step which detects the voice output parameter in the voice reproduced by said voice regenerative apparatus by said output step, The storage according to claim 21 to 24 characterized by having further the 4th storing step which stores in the correspondence record of said storage the voice output parameter detected at said voice output parameter appearance step.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention relates to the storage which memorized the program which performs the information output-control approach applied to an information power control device with possible making coincidence carry out the image output of two or more input at least especially at an image display device, and this information power control device, and this information output-control approach about an information power control device, the information output-control approach, and a storage.

[0002]

[Description of the Prior Art] In recent years, informational distribution is made

from various media at a home. For example, through a ground wave, a communication satellite, a CATV cable network, etc., the image and voice broadcast of TV or radio, and alphabetic character data broadcasting are offered, and the image by the Internet, an electronic mail, etc., voice, alphabetic data, etc. are offered through another side and a communication line network.

[0003] In addition, in CS (communication satellite) broadcast, CATV (cable TV), etc., the so-called digital-broadcasting system which digitizes and transmits a television signal has spread, and it is also becoming it is possible, therefore possible [sponsoring very many television / radio (music) programs also compared with the former] in these systems to secure the channel which attains to several 100 by adoption of digital compression / transmission technique in recent years.

[0004] Moreover, digitization of an AV equipment progresses and much images as package media, such as DVD (digital videodisc), DV (digital video), and a digital camera, and voice sources have also come to exist in domestic.

[0005] Thus, in order to enjoy offer service of the various images from various media, voice, and text, recently, two or more windows are opened to a large-sized display at coincidence, and the multi-window function which assigns the information input source which is different to the each has been realized.

[0006] By the way, it is hard and there is that no the number and amount of

information of a window which it is imagined that an image, voice, and the number of the input roots and its amount of information to the home of text are expanded, and should be displayed on a display by digitization of broadcast, maintenance of a telecom infrastructure, etc. which are performed at future increase, and increase until now also in imagination.

[0007] Moreover, it is expected that the case where the information relevant to a program comes to hand via the Internet during viewing and listening of TV program, or the arrival of an electronic mail takes place during viewing and listening of TV program by the Internet connectivity function of TV receiving set also becomes general. Moreover, when it has a constant time-of-day reception function by the schedule function manager, a timer, etc. as an attached function of TV receiving set, the situation that the interrupt of a display event occurs is also considered.

[0008] Thus, since the number of the windows which should be displayed on a display increases or it responds to it being changed, in the conventional multi-window control system, a user can change the layout of the window screen displayed on a display.

[0009]

[Problem(s) to be Solved by the Invention] However, in the above-mentioned conventional multi-window control system, when a number of a window of

modification which should be displayed on a display occurred, in order to have realized the screen layout which a user needs to perform the layout of a screen, and a setup of the input source each time, is suitable for the combination of the input source, and suits liking of a user, it had taken splendid time and effort and time amount.

[0010] For example, when it was going to display two screens on TV receiving set, the user chose 2 screen-display mode first, and when cutting and changing to the display of two screens, he needed the actuation which chooses the input source which offers the information on the request which you want to display on each screen, and is set up.

[0011] that is, in order to enjoy easily the image supplied from various media, voice, and written information as an intention To the multi-window screen layout at the time of viewing and listening to coincidence, selection in the voice output mode at that time, and a pan, the various information from two or more input sources Performing the shift (what kind of display being performed to what kind of timing?) to multi-window when the display request event of an interruption mold occurs etc., without troubling a user's hand is called for.

[0012] Moreover, it is necessary to assume not only an individual (single people viewing and listening) but the case where a group user (two or more person coincidence viewing and listening) exists, as the above-mentioned user (viewer).

[0013] It aims at offering the information power control device which enables the shift to the screen layout and voice output mode which suited a user's taste more quickly [this invention / when it is made in view of such a trouble and the input source has modification], and easily, the information output-control approach, and a storage.

[0014]

[Means for Solving the Problem] In an information power control device with possible according to invention according to claim 1 in order to attain the above-mentioned purpose making an image display device carry out the image output of two or more input at least at coincidence The user group which consists of at least one person, and the attribute of at least one input, A storing means to match mutually the display parameter which shows the screen configuration when displaying one input on said image display device, and to store as one record even if this ** cannot be found, An user-group recognition means to recognize the user group which consists of at least one person who will look at the screen displayed on said image display device, An attribute detection means to detect the attribute of at least one input specified by said user group, A retrieval means to look for a record from said storing means based on the user group recognized by said user-group recognition means, and the attribute of the input detected by said attribute detection means, An output

means to read the display parameter contained in the record for which it looked with said retrieval means, and to display said at least one input on said image display device based on this display parameter, A display parameter appearance means to detect the display parameter in the screen displayed on said image display device by said output means, The attribute of the user group recognized by said user-group recognition means, and the input detected by said attribute detection means, And it is characterized by having the storing control means which the display parameter detected with said display parameter appearance means is matched [control means] mutually, and makes it store in said storing means as one record.

[0015] When the input specified by said user group is plurality according to invention according to claim 2, it is characterized by containing the display parameter concerning the attribute of two or more of said input, and said two or more input detected with said display parameter appearance means in the correspondence record stored in said storing means.

[0016] When image display is performed to said image display device by said output means according to invention according to claim 9, the case where the demand which asks for displaying new input further occurs -- this -- with an attribute addition detection means to detect the attribute of new input The user group recognized by said user-group recognition means with reference to said

storing means, An additional retrieval means to look for a record based on the attribute of the input detected by said attribute detection means, and the attribute of the new input detected by said attribute addition detection means, An additional output means to read the display parameter contained in the record for which it looked with said additional retrieval means, and to display said at least one input and said new input on said image display device based on this display parameter, A display parameter addition detection means to detect the display parameter in the screen displayed on said image display device by said additional output means, The attribute of the input detected, respectively by the user group recognized by said user-group recognition means, said attribute detection means, and said attribute addition detection means, And it is characterized by having further the additional storing control means which the display parameter detected with said display parameter addition detection means is matched [control means] mutually, and makes it store in said storing means as one record.

[0017] According to invention according to claim 10, when the transfer medium of this input is television broadcasting, as for the attribute of said input, said attribute addition detection means detects the start time of said program including the start time of a program, and said additional output means is characterized by displaying said at least one input and said new input on said

image display device based on said display parameter and said detected start time.

[0018] According to invention according to claim 11, said information power control device It is possible to at least one voice regenerative apparatus to carry out voice playback of the input. Said storing means stores the voice output parameter at the time of making said at least one voice regenerative apparatus reproduce said at least one input in a correspondence record. Said output means While reading the display parameter and voice output parameter which are contained in the record for which it looked with said retrieval means and displaying said at least one input on said image display device based on this display parameter Based on this voice output parameter, it is characterized by making said voice regenerative apparatus reproduce said at least one input.

[0019] Moreover, according to invention according to claim 16, two or more input is set to the information output-control approach applied to the information power control device [an image display device] which can carry out an image output at least at coincidence. The user group which consists of at least one person, and the attribute of at least one input, The 1st storing step which matches mutually the display parameter which shows the screen configuration when displaying one input on said image display device even if there was none of these **, and is stored in storage as one record, The user-group recognition step which

recognizes the user group which consists of at least one person who will look at the screen displayed on said image display device, The attribute detection step which detects the attribute of at least one input specified by said user group, The retrieval step which looks for a record from said storage based on the user group recognized by said user-group recognition step, and the attribute of the input detected by said attribute detection step, The output step which the display parameter contained in the record for which it looked by said retrieval step is read [step], and displays said at least one input on said image display device based on this display parameter, The display parameter appearance step which detects the display parameter in the screen displayed on said image display device by said output step, The user group recognized by said user-group recognition step, It is characterized by having the 2nd storing step which matches mutually the attribute of the input detected by said attribute detection step, and the display parameter detected at said display parameter appearance step, and stores it in said storage as one record.

[0020] According to invention according to claim 21, two or more input furthermore, to coincidence In the storage which memorized as a program the information output-control approach applied to the information power control device [an image display device] which can carry out an image output at least and in which read-out [computer] is possible The user group which said

information output-control approach becomes from at least one person, The 1st storing step which matches mutually the attribute of at least one input, and the display parameter which shows the screen configuration when displaying one input on said image display device even if there was none of these **, and is stored in storage as one record, The user-group recognition step which recognizes the user group which consists of at least one person who will look at the screen displayed on said image display device, The attribute detection step which detects the attribute of at least one input specified by said user group, The retrieval step which looks for a record from said storage based on the user group recognized by said user-group recognition step, and the attribute of the input detected by said attribute detection step, The output step which the display parameter contained in the record for which it looked by said retrieval step is read [step], and displays said at least one input on said image display device based on this display parameter, The display parameter appearance step which detects the display parameter in the screen displayed on said image display device by said output step, The user group recognized by said user-group recognition step, It is characterized by having the 2nd storing step which matches mutually the attribute of the input detected by said attribute detection step, and the display parameter detected at said display parameter appearance step, and stores it in said storage as one record.

[0021]

[Embodiment of the Invention] Hereafter, the gestalt of operation of this invention is explained with reference to a drawing.

[0022] Drawing 1 is the block diagram showing the configuration of the gestalt of the 1 operation of an integrated mold receiver which has a multi-window display control concerning this invention.

[0023] In drawing 1 , 1A is a digital TV receive section, and a tuner 101 carries out selection reception of the electric wave of a predetermined frequency out of the digital television broadcast wave transmitted through TV antenna or a cable. By the tuner 101, the broadcast wave by which selection reception was carried out is sent to the digital data demodulator circuit 102, and recovery, A/D conversion, and error correction processing are performed. Then, scramble discharge for limited reception is performed by the transport descrambler 103, and the data stream called a transport stream (TS) is generated. Under the present circumstances, it is distinguished whether it is reception of the program (program) which agreed with the conditions of contract read from the IC card which extracts the management data (EMM, ECM) of limited reception which is superimposed by the broadcast wave and sent to it, and delivery and a user own in the IC card interface 121. If it is reception of the program (program) which agreed with conditions of contract, it will be processed henceforth [next step] so

that decoding of an image, voice, and data may be possible.

[0024] The MPEG 2 transport demultiplexer 104 divides the inputted transport stream into a Video stream, an Audio stream, and a data-broadcasting-related stream, and reconstructs each stream.

[0025] Usually, two or more programs are multiplexed by one transport stream, and two or more transport streams are transmitted to it from one transponder of a communication satellite further, for example. Therefore, in order to choose one channel, from PSI (Program Specific Information) separated by said demultiplexer 104, the information (PID, PAT, NIT, etc.) about a desired channel is extracted, and channel selection actuation is performed.

[0026] The Video decoder 106 and the Audio decoder 105 decode each MPEG 2 stream of Video and Audio, respectively. The decoded Audio signal is sent to the voice control section 108 of multi-window control-device related block 1D, and a Video signal is sent to Video interface 110a of multi-window control-device related block 1D.

[0027] A data decoder 107 decodes the stream of the data-broadcasting relation sent out by BS digital broadcasting. DSM-CC decoding is performed and, more specifically, a series of files of the obtained XML relation are stored in the field in RAM122 assigned beforehand.

[0028] 1B and 1C are external AV equipments connected to multi-window

control-device related block 1D, and a video signal is sent to the Video interfaces 110b and 110c of multi-window control-device related block 1D, and they send delivery and an audio signal to the voice control section 108 of multi-window control-device related block 1D, respectively.

[0029] In multi-window control-device related block 1D, the voice control section 108 determines the output destination change of each sound signal relevant to two or more images displayed by multi-window. Although the sound signal relevant to the image displayed in the maximum screen window is generally reproduced by Main loudspeaker 109a and the sound signal relevant to the image displayed in a factice's screen window is reproduced by headphone 109b in many cases, in the gestalt of this operation, the voice control section 108 determines it under control by CPU123 based on the past viewing-and-listening historical data. Moreover, it can also output from Audio external output 109c if needed. Of course, that a user specifies directly with remote control 125 etc. also has possible composition. In addition, the voice outputted from the voice control section 108 is changed into an analog from digital one by DAC134.

[0030] The Video interfaces 110a-110c are the input sections which receive the Video signal outputted, respectively from digital TV receive section 1A and external AV equipments 1B and 1C. In the gestalt of this operation, an analog Video signal is inputted into Video interface 110b which is the input section from

external AV equipment 1B, and a digital Video signal is inputted into Video interface 110c which is the input section from external AV equipment 1C. Analog Video interface 110b consists of an A/D converter, a PLL circuit for sampling clock generating, etc., and may contain the conversion circuit of a color space, an interlace-progressive conversion circuit, etc. if needed further. Digital Video interface 110c consists of the decoder circuit, conversion circuit of a voltage level, etc., if the digital Video signals inputted are differential multiplexed signals, such as LVDS (Low Voltage Differential Signaling).

[0031] multi-window control-device related block 1D serves as a gestalt with the input port from digital TV receive section 1A, and an analog and digital [per each] external AV input port as mentioned above. Moreover, there are the following as the source inputted into multi-window control-device related block 1D from other paths.

[0032] The IEEE1394 interfaces 117a and 117b are interfaces for making digital connection of this integrated mold receiver, an external AV equipment, the computer-related peripherals, etc., and D-VHS, a DVD player, etc. for an image transcription etc. are connected.

[0033] A modem 118 sends the information about viewing-and-listening record of users, such as use of charged broadcast, to the management pin center, large by the side of a broadcast entrepreneur through the telephone line, and also the

Internet is accessed and it functions as an interface at the time of exchanging perusal and the electronic mail of various homepages.

[0034] The PCMCIA interface 119 is an interface for capturing the various images photoed with the digital camera etc., and CF (Compact Flash) card used as archive media, such as a digital camera, SmartMedia, etc. are connected through an adapter.

[0035] Once it arranges here, there are the following as the input source to multi-window control-device related block 1D.

[0036] - The image from digital TV receive section 1A, voice, the image from external AV equipments 1B and 1C inputted in the form of data video / audio signal, The image from voice and IEEE1394 interface 117a, DVD inputted via 117b, D-VHS, etc., The image data resolution transducers 111a-111c from the digital camera inputted by the information and PCMCIA interface 119 course by the Internet and the electronic mail which are inputted by voice and modem 118 course It has the video memory for at least 1 screen respectively into it (not shown). It is asynchronous, and once storing the image data from the Video interfaces 110a-110c inputted, respectively, according to the directions from CPU123 and the multi-screen composition control section 112, it changes into a predetermined screen format (size and color number), respectively.

[0037] In addition, a part of graphics accelerator 115 and graphics memory 116

have realized the image from the IEEE1394 interfaces 117a and 117b, or a modem 118 and the PCMCIA interface 119, and resolution transform processing of image data.

[0038] A graphics accelerator 115 generates graphical user interface screens, such as a frame layout of each window in a multi-window screen, background drawing and a homepage browser, an application screen of e-mail, an actuation menu, and an icon, a carbon button, etc.

[0039] An animation plane, a still picture plane, an alphabetic character and a graphic form plane, superposition / change control plane, etc. have the structure which consists of two or more planes, and a graphics memory 116 performs synthetic processing for it to the image from each input source, and image data by management of the multi-screen composition control section 112.

[0040] By cooperation with CPU123, the multi-screen composition control section 112 reads data, such as an image from each input source, an image, and text, from the video memory of the resolution transducers 111a-111c, it develops data on a graphics memory 116 so that it may become predetermined screen layouts (a location, size, the superposition effectiveness, color number, etc.), and it generates a final multi-window screen.

[0041] In this invention, although it will be controlled so that this screen layout becomes a presentation gestalt according to a user and the

viewing-and-listening historical data of the past of an user group, this point is explained later.

[0042] Since a final multi-window screen is outputted to a display 114, the output-control section 113 performs control of drive timing, conversion of a display format, etc. according to the property of a display 114.

[0043] As a display 114, the high definition plasma display and high definition projection mold monitor corresponding to Hi-Vision are used by the big screen from the purpose which harnesses multi-window effectiveness. From the output-control section 113, an indicative data (multi-screen data) is outputted by the timing and the display format according to a property of a display 114.

[0044] A printer interface 120 is a port which connects a printer literally, and it is used for editing and printing the image inputted from the digital camera, or printing the program related information distributed by the broadcast system (data broadcasting is included), and homepage information (a travel guide, the recipe of cooking, a prize application place, various coupon acquisition information, etc.), checking on the screen of this integrated mold receiver.

[0045] CPU123 is for carrying out generalization control of these components. Namely, discernment of the various tables relevant to PSI in said digital-broadcasting system, Decision and processing (a tuner channel selection, the extract of EPG related information, processing, etc.), Display-related control,

such as processing of the XML related file sent as data broadcasting, and the resolution transducers 111a-111c, the multi-screen composition control section 112, Interface control of the voice-related control, a modem 118, the IEEE1394 interfaces 117a and 117b, etc. and the exteriors, such as the voice selection section 108, control of the user interface 124 which includes remote control 125 further, etc. are performed by the book CPU 123. Moreover, implementation of each function in which it is expressed as the viewing-and-listening user detecting element 133 concerning this invention, the attribute detecting element 130 of the input source, and a display and a vocal parameter detecting element 131 and creation of a hysteresis database, and updating are performed when a book CPU 123 performs one processing program.

[0046] RAM122 operates as external memory of CPU123, and also functions as the hysteresis database storage section 132 the part remembers the viewing-and-listening pattern historical data of the user concerning this invention to be.

[0047] A user interface 124 performs selection of input media, a television channel, an external instrument, etc., etc., and actuation, and is fundamentally controlled by cooperation with a suitable actuation screen with remote control.

[0048] Drawing 2 is the external view showing the configuration of the remote control 125 for operating an integrated mold receiver. Hereafter, the operating

procedure of a multi-window screen is explained to an example about the function of the main carbon buttons in connection with this invention.

[0049] First, selection of the image to which a user is going to view and listen, an image, and the information source performs a single screen display or multi-picture features according to the screen layout by which presetting is beforehand carried out to the integrated mold receiver with a menu button 211, the channel carbon button 201, the input source selection carbon button 202, etc. Then, using the longitudinal direction (/return to a degree) of the direction selection key 209, out of some kinds of screen layout patterns by which presetting was carried out, a user chooses a favorite screen layout and chooses it by pressing the decision key 210 (center section of the direction selection key 209). Moreover, when a user wants to arrange freely, after pressing the custom-made key 206 first, the location and magnitude of each window are set up using the direction selection key 209. A series of actuation is performed in the form where the actuation guide displayed on a screen is followed, it is pressing the decision key 210 finally, and the screen where the user was customized is registered. In addition, later describes about the actuation about screen layout modification and a voice mode change again.

[0050] Next, actuation of the integrated mold receiver which has a multi-window display control concerning this invention is explained.

[0051] Drawing 5 is drawing showing an example of the user ID selection screen displayed on a display 114.

[0052] In this screen, a user is doubling and choosing cursor as a favorite character using remote control 125, and registers the character which serves as its ID for every user. For example, father registers a character A and mother into the condition which the character B and the son called the character E and the daughter called the character F in the form of character selection of of each constituent's of a family's ID. Although it will incidentally become general at a public place to make figures (member number etc.) input as user ID from the numerousness of the object numbers, in the gestalt of this operation, a family youth's integrated mold receiver is assumed and the more intelligible graphical user interface screen is proposed for a user.

[0053] Drawing 6 is drawing showing an example of an user-group registration screen.

[0054] Here, how many kinds of that user group can be registered combining the character of each user ID registered in drawing 5 . Here, registration completes the character which constitutes the group who wants to register by remote control actuation like the time of user character registration by making sequential selection. Incidentally, in drawing 6 , it has registered as a group to whom a group 1 expresses father + mother (two husband and wife), and a group 3

expresses two two husband-and-wife + children (here, equivalent to all families).

[0055] Drawing 3 is a flow chart which shows the procedure of creation processing of a viewing-and-listening pattern hysteresis database. After this processing is performed by CPU123 and identifies a viewing-and-listening user on the occasion of viewing and listening of some input sources (TV, Exterior DVD, Internet, etc.), while it detects the attribute of that input source It detects with what kind of gestalt (a screen layout and voice mode) it was viewing and listening to each input source, the hysteresis database which associated them is created, and it consists of a fundamental procedure until it stores in the hysteresis database storage section 132 in RAM122.

[0056] At step S301 of drawing 3 , the viewing-and-listening user detecting element 133 identifies a viewing-and-listening user (recognition). Although those who are located in front of a receiving set with a camera are picturized as the user-identification approach, it identifies, or a fingerprint authentication unit is put on remote control and various approaches exist that it is as performing discernment from a user's fingerprint ****, the approach of making it choose directly by the user is taken from the purpose which more certainly associates a viewing-and-listening user (group) and its viewing-and-listening historical data here. That is, a viewing-and-listening user (group) selection icon as shown in drawing 7 is displayed on bottom-of-screen rightist inclinations by the depression

of fixed time amount behind powering on, or the user carbon button 212 of remote control 125. Drawing 7 is drawing showing an example of the viewing-and-listening own alternative screen displayed on a display 114.

[0057] As for the icon group displayed at this time, a user performs user ID character registration and user-group registration beforehand. That is, it applies to a right end from the left end of an icon group, and they are a single user (father), a single user (mother), an user group 1 (father + mother), an user group 2 (two father + children), and an user group 3 (family all the members). Here, if a viewing-and-listening user's (group) icon is chosen by remote control actuation of a user, a system (CPU123) will recognize a viewing-and-listening user (group).

[0058] Although not illustrated especially here, when selection actuation was not performed by the user, it considered as a setup recognized to be general multiuser as initial setting. The things (for example, single user (father) setup etc.) separately changed from a menu screen according to a user's taste are also possible for initial setting of the viewing-and-listening user at the time of no choosing.

[0059] Next, in step S302, recognizing it as having viewed and listened to a certain input source is performed. Here, when a certain input source (if it is TV channel) is chosen beyond fixed time amount, it is recognized as having viewed and listened. Also about a screen layout, when fixed to the same layout beyond

fixed time amount, it is recognized as having viewed and listened to the input source currently displayed there. The same is said of a voice output. This recognition is for preventing storing the viewing-and-listening pattern which changes a channel one after another at the time of TV channel selection, and looks for a desired channel when actuation called the so-called zapping is performed as historical data.

[0060] In step S303, the attribute detecting element 130 detects the attribute about the input source recognized to have viewed and listened at step S302.

[0061] The attribute data about the input source is multiplexed and sent to a broadcast wave by the digital TV broadcast system as the service incidental information about the channel called SDT (Service Description Table: service description table) and EIT (Event Information Table: event information table), or incidental information about a program. Therefore, the attribute data about the input source can be extracted by processing, after [CPU / 123] filtering the above-mentioned table data by digital TV receive section 1A. Moreover, about the external input sources other than a broadcast system, CPU123 detects each parameter by cooperating with each interface input section.

[0062] Drawing 8 is drawing showing the example of a configuration of the attribute data of the input source. As shown in this drawing, after determining the input source ID as a management number first, the classification (TV viewing

and listening, homepage browsing, an electronic mail, notice of a scheduler, etc.) of the genre of a program (or channel) in case the classification of ** media and ** media are broadcast systems, and ** application etc. is detected as attribute data of the input source, and it manages as one data structure. In drawing 8 , parameters, such as a title, a genre, and a channel, are extracted only when it exists by classification of media, and in the case of the media which do not exist as data, it is made into a blank. Moreover, start time is for recognizing the viewing-and-listening start time of the input source, and when the input event of the interruption mold explained later occurs, it is used as data for screen layout control.

[0063] Drawing 9 is drawing showing the example of a classification of the classification of the media in attribute data.

[0064] As a classification of media, the clock (timer) carried as an internal function besides four kinds of inputs from a broadcast system, the input from the Internet (modem), the input from external AV equipments 1B and 1C, the input from the IEEE1394 interfaces 117a and 117b, and the input from the PCMCIA interface 119 and the input from a scheduler are also classified as one media.

[0065] Drawing 10 is drawing showing an example of a genre classification in case the classification of the media in attribute data is TV broadcast system.

[0066] Here, it classified into news, a sport, a movie, a drama, variety,

documentary, and seven genres of culture. Of course, although there were various things besides this, they were treated as "others" here. In addition, it has a screen layout, voice mode, etc. and close relation -- especially a genre displays a sport, a movie, etc. using a large window in the attribute data of the input source -- in many cases.

[0067] Drawing 11 is drawing showing the example of a classification of the application in attribute data.

[0068] In this integrated mold receiver, the Internet browser, the electronic mail, and the pan are equipped with applications, such as a clock and a scheduler, as a built-in function besides reception of TV broadcast.

[0069] It returns to drawing 3 and a display and the vocal parameter detecting element 131 extract the display parameter of the input source in step S304.

[0070] Drawing 12 is drawing showing the example of a configuration of the display parameter in the gestalt of this operation.

[0071] Assignment of the input source to each window [say / in which window each input source is displayed] is performed by CPU123.

[0072] There is the input source ID in display parameter data first. Since the input source ID shows the attribute data (drawing 8) of the input source, the window where this input source should be displayed, and the attribute of this input source will be connected here.

[0073] Each data from the window starting address in the display parameter of drawing 12 to a layer is a parameter about the display of a window. These parameters are extracted when CPU123 refers to the value of the register related to the display control in a graphics accelerator 115. As a parameter about the location and size of a window, a starting address (the upper left address is usually shown), the direction size (the number of dots) of X (width), and the direction size (the number of dots) of Y (length) are extracted. Furthermore, the layer location of a window, the display effectiveness (transmittance), etc. are extracted between each window as a parameter which shows relation with a background screen. In addition, the number of foreground colors for every window etc. is managed as display parameter data if needed.

[0074] Next, in step S305, a display and the vocal parameter detecting element 131 extract a vocal parameter.

[0075] Drawing 13 is drawing showing the example of a configuration of the vocal parameter data in the gestalt of this operation.

[0076] Assignment of the input source to each output channel [say / by which output channel each input source is outputted] is performed by CPU123 like a display parameter.

[0077] There is the input source ID in vocal parameter data first. Since the input source ID shows the attribute data (drawing 8) of the input source, related

attachment by in what kind of the mode it is viewed and listened to the input source with what kind of attribute by which output channel is obtained.

[0078] Drawing 14 is drawing showing the example of a classification of an output channel.

[0079] It is classified into either of five without the Main loudspeaker, headphone, the external outputs 1 and 2, and a voice output in the gestalt of this operation.

[0080] Drawing 15 is drawing showing the example of a classification in voice mode.

[0081] A multichannel stereo points out the modes, such as DORUBI 5.1ch adopted with DVD etc., and DTS (Dolby Theater Surround). A parameter voice-related [these] is extracted when CPU123 cooperates with the Audio decoder 105 or the voice control section 108 (a register setup, mode discernment).

[0082] It returns to drawing 3 , and in step S306, CPU123 arranges the relation between the attribute data of the input source detected at step S303, and the display parameter data and vocal parameter data which were detected at steps S304 and S305, respectively, and generates the hysteresis database of in what kind of screen layout (display parameter) and voice mode to have viewed and listened to various input sources. Namely, the viewing-and-listening frequency is

stored in the hysteresis database storage section 132 of RAM122 for by what kind of display parameter and vocal parameter it was viewing and listening for every input source ID again. Furthermore, when coincidence viewing and listening of two or more input sources is being carried out, the display parameter and vocal parameter for every combination pattern of the input source ID are stored in the hysteresis database storage section 132.

[0083] Although two or more viewing-and-listening pattern data remain as hysteresis even if it is the case where it views and listens to the same input source ID as a hysteresis database, the display parameter and vocal parameter in each case are memorized, and it sorts and memorizes in order with high viewing-and-listening frequency.

[0084] Moreover, since the any value on a screen can be taken among display parameters about a window starting address, the direction size of X, and the direction size of Y, in the case of the near address and size, he performs rolling of data, and is trying for the thing of the range of a certain value to memorize it as the same data (value).

[0085] Thus, the viewing-and-listening pattern historical data showing with what kind of screen and voice it was viewing and listening to which input source are accumulated in the hysteresis database storage section 132 for every user individual and user group.

[0086] Drawing 4 is a flow chart which shows basic operations sequence until it determines the screen layout and voice mode at the time of viewing and listening to the input source with a user.

[0087] First, a viewing-and-listening user is identified in step S400. Here, although an icon display is performed on a screen and selection is demanded from a user like actuation of step S301 of drawing 3 , when there is no alter operation from a user, it is judged as viewing and listening (it is based on initial setting of a device and modification is possible) by general multiuser.

[0088] Next, in step S401, the chosen input source ID to which the user was going to view and listen is identified. In this case, there may be a case where only the one input source is chosen and there may also be a case where two or more input sources are chosen from the start.

[0089] It is confirmed whether whether it having been viewed and listened to the input source (or two or more input sources' putting together) in the past at the following step S402 based on the attribute data of the selected input source and they exist in a viewing-and-listening pattern hysteresis database.

[0090] When it exists in a hysteresis database, based on the viewing-and-listening pattern historical data of those past, it shows order with high viewing-and-listening frequency in a screen layout and voice mode (S403), and it is asked to a user that it is O.K. in the screen layout and voice mode which

were shown (S404).

[0091] Drawing 16 is drawing showing an example of an inquiry screen (OSD display) to a user. Here, the left corner of the screen under viewing and listening part is occupied, and it is being asked for every screen mode and voice mode that it is O.K.

[0092] In drawing 16 , although the example of presentation of the inquiry screen in the form where the left corner of the screen under viewing and listening part is occupied was shown, it is also possible to display this selection check screen (screen mode, voice mode), adjusting the transmittance of OSD and showing the screen of a background. Furthermore, presentation in a sociable form is also possible to the user in a larger age group by considering as a graphical design display as preset some patterns beforehand, for example, shown in drawing 17 .
Drawing 17 is drawing showing an example of a graphical display of the inquiry to a user.

[0093] When it views and listens on a screen as it is, and it returns to drawing 4 , a user performs selection called O.K. for a screen and voice by remote control actuation to the inquiry to a user and it passes beyond fixed time amount, the combination, the screen layout, and voice mode of the input source at that time are fed back to a viewing-and-listening pattern hysteresis database (S420). If it becomes at step S403 by this when viewed and listened in a screen layout with

the highest viewing-and-listening frequency, and voice mode, the one number of frequency of the viewing-and-listening pattern will be added. In addition, when selection called NG is performed at step S404, it shows in a screen layout with the 2nd highest viewing-and-listening frequency, and voice mode (S403), and it is asked to a user that it is O.K. in the screen layout and voice mode which were shown (S404). When selection called NG is performed further here, it shows in a screen layout with the 3rd highest viewing-and-listening frequency, and voice mode (S403), and it is asked that it is O.K. in the screen layout and voice mode which were shown (S404).

[0094] Here, it shows order with much combination in a viewing-and-listening pattern hysteresis database as a presentation processing algorithm in the gestalt of this operation. After performing weighting in each parameter which constitutes a viewing-and-listening pattern hysteresis database in fact (weighting = equivalent to equivalence in the case of 1), some kinds of parameter combination performs predetermined data processing, by this, a user and the profile for every user group are generated, and presentation ranking is determined based on it. Although various algorithms can be considered as a generation method of these user profiles according to the purpose (application), explanation is omitted here.

[0095] When there is no desirable presentation gestalt into the

viewing-and-listening pattern (a screen layout, voice mode) shown 3 times, it shifts to the mode in which a user performs selection and a setup freely by remote control actuation at step S405. A screen or an audio modification menu is called by pressing the custom-made key 206 of remote control 125, for example, if it is screen modification, specifically, the location and magnitude of each window will be set up using the direction selection key 209. The example of the actuation guide display at the time of changing a screen layout and voice mode into drawing 18 and drawing 19 is shown, respectively.

[0096] It will view and listen by the pattern, it returns to drawing 4 and asks whether this setting modification is O.K. after setting modification by the user in step S405 (S406), and if this setting change is made to it being O.K., feedback in a viewing-and-listening pattern hysteresis database will be performed like the above-mentioned (S420). When the retry of the setting modification by the user is carried out to 2 times when a setting change by the user is made to it being NG (S405), and it is referred to as NG 3 times, it displays in the screen layout and voice mode which have been set up beforehand (presetting is carried out) (S407). Some kinds of screen layouts and the pattern in voice mode are preset beforehand, out of the pattern in in the some kinds of screen layouts and voice mode which presetting of the user was carried out using the longitudinal direction (/return to a degree) of the direction selection key 209 of remote control

125, a favorite pattern is chosen and, specifically, it is chosen by pressing the decision key 210 (center section of the direction selection key). In addition, as one kind, even if the pattern in the screen layout by which presetting was carried out, and voice mode is unnecessary in selection, it is good.

[0097] When viewing and listening with the pattern by which presetting was carried out is chosen, renewal of a viewing-and-listening pattern hysteresis database is performed similarly (S420).

[0098] On the other hand, when there is no input source (or they should put together) to which it is going to view and listen in a viewing-and-listening pattern hysteresis database in step S402 of drawing 4 , presentation with the pattern in the screen layout by which presetting was carried out at step S408, and voice mode is performed. Here, a user chooses from two or more presetting patterns like the above-mentioned.

[0099] A presentation gestalt is checked at step S409. It will view and listen as it is, and if it is O.K., renewal of a viewing-and-listening pattern hysteresis database will be performed (S420). In the case of NG, a setting change of the pattern in a screen layout and voice mode is made by the user at step S410. Processing here is the same as processing at the above-mentioned step S405.

[0100] In O.K., it views and listens by that pattern, and renewal of a viewing-and-listening pattern hysteresis database is performed as a result of this

setting modification (S420). When NG continues 3 times or more, a presetting pattern shows compulsorily at step S412.

[0101] Thus, viewing and listening with the pattern in a certain screen layout and voice mode is performed, and even if it is which case, renewal of a viewing-and-listening pattern hysteresis database is performed after checking having viewed and listened beyond fixed time amount by the pattern.

[0102] In addition, when the input source (display event) of the interruption mold from an electronic mail, a scheduler (timer), etc. is generated in the midst which has already viewed and listened to a certain input source, it is at the generating time and can respond to such a case by making it return to step S401. That is, in step S401, processing which distinguishes whether those combination already exists in a viewing-and-listening pattern hysteresis database like the above-mentioned about the input source under viewing and listening and the input source generated in the form where it interrupts, and shows it henceforth to drawing 4 will be performed similarly. In addition, in the case of the input source of an interruption mold, as a parameter of a viewing-and-listening pattern hysteresis database, although viewing-and-listening elapsed time is newly added, about this point, it mentions later.

[0103] Drawing 20 is drawing showing some viewing-and-listening pattern hysteresis databases.

[0104] It is expressed with a viewing-and-listening pattern hysteresis database in what kind of screen layout and voice mode various users (user group) were viewing and listening to what kind of the input source. Here, about the viewing-and-listening pattern of a typical user's combination (user group), the past, but the screen layout and voice mode to which it was viewed and listened are taken up, and it is table-ized. Of course, the viewing-and-listening historical data of every user's (user group) past are histogram-ized for this database creation, a setup performs rolling processing (the data which approach mutually are treated as the same data) about screen (window) size etc., and the activity of extracting the combination in the screen layout which viewing-and-listening frequency had, and voice mode from the inside is always done as background processing of CPU123.

[0105] Although the table shown in drawing 20 shows some viewing-and-listening patterns (a screen layout, voice mode) with which it was viewed and listened respectively most mostly for every combination of the input source, the viewing-and-listening pattern historical data according to the count of viewing and listening are contained in the flesh side of this table, respectively with the 2nd and 3rd -- which were processed based on the hysteresis database for every combination of each input source.

[0106] Next, the screen layout and voice mode to viewing and listening by the

user and the user group explain concretely how it is processed based on the past viewing-and-listening hysteresis according to some examples.

[0107] Drawing 21 is drawing showing an example of the screen which is displayed in viewing and listening by the independent user (father) who showed the 1st line (viewing-and-listening pattern A) of the table of drawing 20 .

[0108] As the input source, it is "digital TV broadcast" 1 **, and a genre is the case of a "sport." According to the table of drawing 20 , since this user (father) was viewing [in stereo mode / in most cases] from the Main loudspeaker and listening as a wide full screen display and voice as a screen layout in the case of this input source, this multi-window display control is controlled to perform presentation with that pattern preferentially, when a user chooses that input source (digital TV broadcast -> sport) (step S403 of drawing 4).

[0109] Drawing 22 is drawing showing an example of the screen which is displayed in viewing and listening by the independent user (father) who showed the 3rd line (viewing-and-listening pattern C) of the table of drawing 20 .

[0110] This is a screen layout in the case of starting a browser, in order to investigate program associated data by digital TV broadcast, while viewing and listening to the program of documentary, and checking the homepage information relevant to a program. In such a case, it sets, and since it was viewing and listening in many cases with the gestalt which this user displays TV

screen on left 2/3, and displayed the display of a homepage (browser) on right 1/3 in the past, it is displaying in the screen layout as shown in drawing 22 .

[0111] Drawing 23 is drawing showing an example of the screen which is displayed in viewing and listening by the user group 1 (father + mother) shown in the 2nd line (viewing-and-listening pattern B) of the table of drawing 20 .

[0112] This is "digital TV broadcast" 2 ** as the input source, and is the case where one is a drama and another is a sport among those. In this user group 1, expressing a drama as a full screen, in case coincidence viewing and listening of the past, a drama, and the sports program is carried out, a child screen is opened at the screen lower right, and since most viewing-and-listening patterns of checking the advance situation of a sport were taken, presentation by the screen layout as preferentially shown in drawing 23 is performed.

[0113] Drawing 24 is drawing showing an example of the screen which is displayed in viewing and listening by the user group 2 (two father + children) shown in the 4th line (viewing-and-listening pattern D) of the table of drawing 20 .

[0114] This is a screen layout in case father views and listens to a news program by data broadcasting, while two children view and listen to animation by TV broadcast. In such a case, it sets, and since it was viewing and listening in many cases with the gestalt which displays an animation screen on left 2/3, and displays the display of data broadcasting on right 1/3 when animation + data

broadcasting was chosen as combination of the input source by this user group 2 in the past, it is displaying in the screen layout as shown in drawing 24 .

[0115] Also in the case explained above and the case to be explained from now on, although it is the same, it is characterized by showing first by the pattern to which it viewed and listened in this multi-window display control. And when a user does not set the viewing-and-listening pattern to O.K., if only there are historical data about the 2nd and the 3rd viewing-and-listening pattern by remote control actuation as above-mentioned, it is considering as the selectable configuration one by one. That is, in "no", presentation to which return and viewing-and-listening frequency followed the 2nd viewing-and-listening pattern high to the 3rd is performed to step S403 twice [more] at step S404 of drawing 4 . Here, as historical data, two or more viewing-and-listening patterns do not exist, and when the configuration in the shown screen layout and voice mode is not pleasing, it will progress to the customize processing by the user of step S405.

[0116] Next, while viewing and listening to a certain input source, it explains per actuation of this multi-window display control when the display demand (event) of other input sources occurs.

[0117] Drawing 25 is drawing in which an independent user (father) shows an example of the screen displayed when the arrival of an electronic mail is during

viewing and listening on a full screen about the movie from the DVD equipment connected by IEEE1394 interface 117a, as shown in the 5th line (viewing-and-listening pattern E) of the table of drawing 20 .

[0118] In this case, the user had chosen the icon display of the e-mail arrival to the screen lower right section from the intention that it does not interfere with viewing and listening as the past as a screen layout at the time of electronic mail arrival. For this reason, this multi-window display control chooses such a display mode as first presentation gestalt, and performs presentation like drawing 25 .

[0119] Drawing 26 is drawing in which an independent user (father) shows an example of the screen displayed in a drama when the arrival of an electronic mail is during viewing and listening on a full screen by digital TV broadcast, as shown in the 6th line (viewing-and-listening pattern F) of the table of drawing 20 .

[0120] In this case, the notice window which shows the arrival of an electronic mail is displayed on the top layer of a screen center section instead of an icon display like [under movie viewing and listening of the viewing-and-listening pattern E] (drawing 26 (B)), after those 3 seconds, e-mail application is started automatically and the window for an e-mail display is opened in one third of sizes on the right-hand side of a screen (drawing 26 (C)). This is the result of being based on the hysteresis to which the direction of a drama interrupted and this user has carried out tolerant correspondence to a mold display request event

compared with a movie.

[0121] The e-mail application starting timing after the size of the window where this electronic mail is displayed, a location, and the notice window display of arrival of the mail etc. is determined by the historical data of a user's past. Of course, if needed, it is good, and a user sets up manually and it may be made to make it a favorite setup by making it memorize also by the display event of an interruption mold.

[0122] Moreover, you may make it take the method of presentation which is [carry out / whether about the display event of such an interruption mold, it indicates by the icon according to the viewing-and-listening elapsed time of the input source to which it was viewing and listening till then, or / the hop rise of the window] different. For example, when viewing-and-listening time amount passes considerably and game termination of the Climax scene of a movie or a sport is approached, generally the automatic hop rise of a window tends to be kept at arm's length. Then, using the start time (viewing and listening) of the input source contained in the attribute parameter shown in drawing 8 , based on viewing-and-listening elapsed time, the viewing-and-listening elapsed time of the input source is computed, and it opts for an icon display, the hop rise display of a window, etc. based on this computed viewing-and-listening elapsed time at the time of display event generating of an interruption mold. In addition, calculation

of viewing-and-listening elapsed time can also be computed from initiation of the program to which detected the information about the program acquired from the information about the program on which the clock function prepared in this integrated mold receiver may be used for, or a broadcast wave is overlapped if it is TV program etc. or the Internet, CD-ROM, etc., and it viewed and listened from the data, and end time.

[0123] Drawing 27 is drawing in which an user group 3 (two husband-and-wife + children) shows for news an example of a screen views and listens to headline news and a weather report in a list, and are viewing and listening to a clock to coincidence by the internal function by data broadcasting by digital TV broadcast in the morning, as shown in the 7th line (viewing-and-listening pattern G) of the table of drawing 20 .

[0124] This is the screen obtained as a result of detecting that this user group was performing viewing and listening by this screen layout in the past and determining a screen layout automatically from an user group and the combination (a genre, start time) of the input source by this multi-window display control.

[0125] As mentioned above, in the multi-window display control concerning this invention, a user/user group to which it is viewing and listening is recognized, a screen layout and voice mode are determined based on the

viewing-and-listening hysteresis of the past of this user/user group, a screen is displayed according to it, and voice is outputted.

[0126] In addition, in the gestalt of operation mentioned above, although it has composition which contains a display (display 114) as an integrated mold receiver which has a multi-window display control (drawing 1), if it carries out from the essence of this invention, it is also possible to apply this invention to IRD (Integrated Receiver decoder) which an integrated mold receiver does not necessarily need to be equipped with a display, for example, does not have a display.

[0127] Moreover, it cannot be overemphasized by supplying the storage which memorized the program code of the software which realizes the function of the gestalt of operation mentioned above to a system or equipment, and reading and performing the program code with which the computer (or CPU and MPU) of the system or equipment was stored in the storage that this invention is attained.

[0128] In this case, the program code itself read from the storage will realize the function of the gestalt of the above-mentioned operation, and the storage which memorized that program code will constitute this invention.

[0129] As a storage for supplying a program code, a floppy disk, a hard disk, an optical disk, a magneto-optic disk, CD-ROM, CD-R, a magnetic tape, the memory card of a non-volatile, ROM, etc. can be used.

[0130] Moreover, also when the function of the gestalt of operation which performed a part or all of processing that OS which is working on a computer is actual, based on directions of the program code, and the function of the gestalt of operation mentioned above by performing the program code which the computer read is not only realized, but was mentioned above by the processing is realized, it cannot be overemphasized that it is contained in this invention.

[0131] Furthermore, after the program code read from the storage was written in the memory with which the functional expansion unit connected to the functional add-in board inserted in the computer or the computer is equipped, Also when the function of the gestalt of operation which performed a part or all of processing that CPU with which the functional add-in board and functional expansion unit are equipped is actual, based on directions of the program code, and was mentioned above by the processing is realized, it cannot be overemphasized that it is contained in this invention.

[0132]

[Effect of the Invention] according to [as explained in full detail above] the information power control device of this invention -- the inside of two or more input sources beforehand -- which input source (an image --) When it is viewing and listening with what kind of screen and voice configuration or the input source of an interruption mold enters, informational combination With relation with the

image to which it was viewing and listening then, the viewing-and-listening hysteresis information for every viewing-and-listening user gestalt of the past about the attribute of the input source and the output-control approach of the input source of to what kind of multi-window display it shifted is memorized. And a means to identify a viewing-and-listening user is established, and in case display playback of the input source offered from two or more media is carried out at coincidence, based on the viewing-and-listening hysteresis information, a voice output is controlled in a screen layout list.

[0133] The information presentation gestalt which suited a user's taste thereby more quickly and easily is realized, and it makes it possible to enjoy a desired program and contents efficiently.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the block diagram showing the configuration of the gestalt of the 1 operation of an integrated mold receiver which has a multi-window display control concerning this invention.

[Drawing 2] It is the external view showing the configuration of the remote control

for operating an integrated mold receiver.

[Drawing 3] It is the flow chart which shows the procedure of creation processing of a viewing-and-listening pattern hysteresis database.

[Drawing 4] It is the flow chart which shows basic operations sequence until it determines the screen layout and voice mode at the time of viewing and listening to the input source with a user.

[Drawing 5] It is drawing showing an example of the user ID selection screen displayed on a display.

[Drawing 6] It is drawing showing an example of an user-group registration screen.

[Drawing 7] It is drawing showing an example of the viewing-and-listening own alternative screen displayed on a display.

[Drawing 8] It is drawing showing the example of a configuration of the attribute data of the input source.

[Drawing 9] It is drawing showing the example of a classification of the classification of the media in attribute data.

[Drawing 10] It is drawing showing an example of a genre classification in case the classification of the media in attribute data is TV broadcast system.

[Drawing 11] It is drawing showing the example of a classification of the application in attribute data.

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[Drawing 12] It is drawing showing the example of a configuration of the display parameter in the gestalt of this operation.

[Drawing 13] It is drawing showing the example of a configuration of the vocal parameter data in the gestalt of this operation.

[Drawing 14] It is drawing showing the example of a classification of an output channel.

[Drawing 15] It is drawing showing the example of a classification in voice mode.

[Drawing 16] It is drawing showing an example of an inquiry screen (OSD display) to a user.

[Drawing 17] It is drawing showing an example of a graphical display of the inquiry to a user.

[Drawing 18] It is drawing showing the example of the actuation guide display at the time of changing a screen layout.

[Drawing 19] It is drawing showing the example of the actuation guide display at the time of changing voice mode.

[Drawing 20] It is drawing showing some viewing-and-listening pattern hysteresis databases.

[Drawing 21] It is drawing showing an example of the screen which is displayed in viewing and listening by the independent user (father) who showed the 1st line (viewing-and-listening pattern A) of the table of drawing 20 .

[Drawing 22] It is drawing showing an example of the screen which is displayed in viewing and listening by the independent user (father) who showed the 3rd line (viewing-and-listening pattern C) of the table of drawing 20 .

[Drawing 23] It is drawing showing an example of the screen which is displayed in viewing and listening by the user group 1 (father + mother) shown in the 2nd line (viewing-and-listening pattern B) of the table of drawing 20 .

[Drawing 24] It is drawing showing an example of the screen which is displayed in viewing and listening by the user group 2 (two father + children) shown in the 4th line (viewing-and-listening pattern D) of the table of drawing 20 .

[Drawing 25] As shown in the 5th line (viewing-and-listening pattern E) of the table of drawing 20 , it is drawing in which an independent user (father) shows an example of the screen displayed when the arrival of an electronic mail is during viewing and listening on a full screen about the movie from the DVD equipment connected with the IEEE1394 interface.

[Drawing 26] As shown in the 6th line (viewing-and-listening pattern F) of the table of drawing 20 , it is drawing in which an independent user (father) shows an example of the screen displayed in a drama when the arrival of an electronic mail is during viewing and listening on a full screen by digital TV broadcast.

[Drawing 27] As shown in the 7th line (viewing-and-listening pattern G) of the table of drawing 20 , an user group 3 (two husband-and-wife + children) is

drawing showing for news an example of a screen views and listens to headline news and a weather report in a list, and are viewing and listening to a clock to coincidence by the internal function by data broadcasting by digital TV broadcast in the morning.

[Description of Notations]

1A Digital TV receive section

1B, 1C External AV equipment

1D Multi-window control-device related block (information power control device)

108 Voice Selection Section

109a Loudspeaker (voice regenerative apparatus)

109b Headphone (voice regenerative apparatus)

109c Audio external output

111a-111c Resolution transducer

112 Multi-Screen Composition Control Section

113 Output-Control Section

114 Display (Image Display Device)

115 Graphics Accelerator

116 Graphics Memory

117a, 117b IEEE1394 interface

118 Modem

119 PCMCIA Interface

122 RAM

123 CPU (Retrieval Means, Output Means, Storing Control Means, Storing Control Means, Additional Retrieval Means, Additional Output Means, Additional Storing Control Means)

125 Remote Control

130 Attribute Detecting Element (Attribute Detection Means, Attribute Addition Detection Means)

131 Display and Vocal Parameter Detecting Element (Display Parameter Appearance Means, Display Parameter Addition Detection Means)

132 Hysteresis Database Storage Section (Storing Means)

133 Viewing-and-Listening User Detecting Element (User-Group Recognition Means)